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Utilizing Technological Pedagogic Content Knowledge (TPACK) To Improve Digital Economic Literacy

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Abstract: *Education is a basic component that can determine whether a country is progressing or not, which is also closely related to literacy. Where the activities and processes in it are a more detailed part of literacy, one of which is Economic Digital Literacy. The aim of this research is to determine the role of Technological Pedagogical Content Knowledge (TPACK) in increasing Digital Economic Literacy which is categorized as still low. The method used is a literature review whose sources are obtained from the Google Scholar website as well as reputable international journals with publications less than 10 years old. The results of the analysis of various literature reviews show that Technological Pedagogical Content Knowledge (TPACK) participates in increasing Economic Digital Literacy. The implementation of TPACK will have a positive impact on the flow of learning with a combination of knowledge, pedagogy, technology. With the combination of knowledge, pedagogy, technology, TPACK's role is able to increase Digital Economic Literacy.*

Keywords: *Technological Pedagogical Content Knowledge (TPACK), Economic Digital Literacy*

INTRODUCTION

The increasingly rapid development of technology and information has an impact on changes and new challenges for society. This is marked by *the era of industrial revolution* 4.0 starting to shift to *the era of super smart society 5.0* (Ririen & Daryanes, 2022). To keep up with increasingly rapid technological developments of course also requires improving the quality of human resources, one of which is through education. According to Ririen and Darvanes (2022), the world of education is one path that can be taken to improve skills and also the quality of human resources. Based on the opinion of Palupi et al., (2020), education is a basic component that can determine whether a country is progressing or not, which is also closely related to literacy, activities and processes which are a more detailed part of literacy, one of which is Digital Literacy. Economy.

In the learning context, Digital Economic Literacy is a combination of economic literacy and digital literacy which enables students to use and manage economic information contained on the internet or cyberspace (Wahbi & Ariwibowo, 2019). This digitalization makes economic literature more accessible, thus encouraging people to have a more resilient

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mindset (Firmansyah, 2022a). Apart from making it easier to access more *up to date educational information* , literacy is also able to cover broader information (Salim, et al., 2020).

The importance of digital economic literacy can be seen from its usefulness for students as preparation for future life and also for everyday life (Saepuloh & Rodiah, 2022). This is in line with Ernawati (2017), where economic literacy is important in student learning because by understanding this literacy students can face economic problems that are relevant to their daily economic life. Not only that, economic literacy integrated into digital literacy is also very important for the continuity of learning. Where economic literacy in digitalization allows students to gain attitudes, knowledge and skills through learning activities that are more interesting, better, easier, faster and of course fun (Shintiyah, 2023).

However, in reality, the level of digital literacy in Indonesia is still relatively low . This is in accordance with data from INDEF Senior Economist A viliani (Anam, 2023) , that the level of Digital Literacy in Indonesia is only 62%. This figure is the lowest compared to other ASEAN countries, namely 70% on average. Low digital literacy can have a significant impact on decreasing digital literacy in the economy. Digital literacy is an individual's ability to use digital technology effectively, which in turn can influence engagement in the digital economy (Wang et al., 2022). Other research shows that digital literacy helps low-income groups to participate adaptively, rationally, and effectively in various digital-related aspects of life, thereby helping reduce income gaps and narrowing relative gaps in income (Wang et al., 2022).

The low level of digital economic literacy experienced by students is caused by monotonous learning activities with lectures without using interesting technology (Sai, 2017). Even though students have easy access to digital media, they lack the ability to filter the information they receive. This is influenced by the advanced age of educators, limited educational technology content, and the need for adequate facilities. Apart from that, there are limitations for teachers in utilizing information technology (Putri & Citra, 2019). Some of these problems have an impact on reducing students' enthusiasm for participating in learning, so that learning activities become less effective. In fact, economic literacy integrated in digitalization functions as a guide to support learning so that students not only focus on understanding the material but also develop creative thinking in utilizing technology (Abdullah & Wicaksono, 2020; Umaya & Riwanto, 2020)

The solution to dealing with the problems above is to use *Technological Pedagogic Content Knowledge* (TPACK) in learning. The implementation of TPACK will have a

positive impact on the flow of learning with a combination of knowledge, pedagogy, technology. In fact, strengthening the competence *of Technological Pedagogical Content Knowledge* (TPACK) has a positive impact on teacher competence. Where teachers can understand the 3 competencies that teachers as educators must master in order to support professional teacher abilities which include material content abilities, pedagogical abilities, and technological abilities (Sirajuddin, 2023). Absari's research (2020) examines how *Technology, Pedagogy and Content Knowledge* (TPACK) has a huge effect on learning.

TPACK has a huge effect on learning. Even if the teacher does not master the components in TPACK, the expected results in learning will be less than optimal (Absari, 2020). However, if teachers use TPACK-based learning, it will attract students' attention so that they do not get bored in learning and of course this will have an impact on improved learning outcomes (Widaningsih, Irianto, & Yuniarti, 2023). This is in line with research results from Santos, JM, Castro, RDR (2021) showing that TPACK is an ideal application in all aspects of learning.

Responding to the challenges required, requires an educational transformation that combines pedagogy, technology, and content/materials which can certainly increase students' abilities and interest in literacy, namely by using *Technological Pedagogic Content Knowledge* (TPACK) (Valtonen, et al., 2017) . Therefore, in this article we will present a review of how far TPACK can solve the problem of low digital economic literacy in the world of education. To focus the research according to the writing objectives, the writing guidelines are based on *the Research Question* (RQ). *The Research Question* (RQ) in this study is as follows.

R Q1 : How important is Digital Economic Literacy in Indonesia?

R Q2 : How can *Technological Pedagogic Content Knowledge* (TPACK) improve Digital Economic Literacy?

THEORITICAL REVIEW

Economic Digital Literacy

Literacy refers to the ability to handle digital devices and other communication tools, process information, and transmit absorbed information (Muttaqin et al., 2020: 22). In a book entitled *Digital Literacy,* it is explained that digital literacy is the ability to understand and use information in various forms and from various sources that can be accessed via computer devices (Paul Gilster in Kemendikbud, 2017: 7).

According to Suherdi (2021), digital literacy refers to users' knowledge and skills in using digital media, such as communication tools, internet networks, and others. User skills in digital literacy include their ability to discover, solve, deploy, use, create and use them wisely, intelligently, carefully and purposefully.

Digital Economic Literacy is an important concept in the context of current digital economic development. Digital literacy includes not only an individual's ability to use digital technology, but also understanding the economic implications of using that technology. In the educational context, the concept of digital economic literacy is becoming increasingly important along with developments in technology and the digital economy. Economic digital literacy refers to an individual's ability to understand, evaluate, and use economic information obtained digitally wisely to make the right decisions in a personal and professional economic context (Firmansyah & Dede, 2022). Increasing digital literacy in students can help them understand economic concepts, access economic information effectively, and improve their ability to make appropriate economic decisions (Sestiani et al., 2022).

Apart from that, digital literacy also plays a role in improving self-regulated learning in students, by encouraging curiosity and creativity in gaining knowledge about certain subject matter (Sestiani et al., 2022). This shows that digital literacy not only has an impact on economic understanding, but also on independent learning abilities and the development of individual creativity in an educational context.

Technological Pedagogic Content Knowledge (TPACK)

Technological Pedagogic Content Knowledge (TPACK) is a framework used as a blueprint to improve teacher preparation in facing the challenges of the 21st century (Valtonen, et al., 2017). TPACK is the basis of effective teaching, which consists of three learning concepts. The first is the understanding and concept of learning using digital learning platforms. Second is a pedagogical technique that uses technology to teach content/material. Third, technological knowledge can be applied to build knowledge and develop new methods. AI technology enables professional teachers to obtain sufficient TPACK as the progress of developing competent and high-quality teaching skills in response to the demands and changes of the times (Nevrita et al., 2020). The different definitions above show that TPACK is a framework of thinking where a teacher needs to master three abilities: technology, pedagogy, and content/material. The TPACK framework consists of (1) Technological Knowledge (TK), which includes knowledge of the tools, software, and hardware used; (2) Pedagogical Knowledge (PK), which is related to managing, teaching and guiding students; (3) Content Knowledge (CK), which is about the subject or curriculum.

Absari's research (2020) examines how *Technology, Pedagogy and Content Knowledge* (TPACK) has a huge effect on learning. In this research, it was explained that if teachers do not master the components in TPACK, the expected results in learning will be less than optimal. In this research, it was also explained that the characteristics of implementing the 2013 Curriculum will be achieved if teachers can integrate the components of TPACK in the learning process in the classroom. The research was conducted on 200 teachers in the Salatiga area using associative quantitative methods.

The findings of VMc Kenney's (2017) research show that currently, very little special attention is given to the knowledge teachers need to foster literacy from an early age regarding the use of technology in learning. This is due to many factors, including the belief that many new technologies are not widely used in schools. Plus, there are still many teachers who are still trying to use technology effectively in their own learning. The recommendation in this research is how to help prepare new teachers (pre-service teachers) to use technology in the service of developing technological literacy from an early age. For this reason, it is necessary to invest in developing educational TPACK for teachers. In total, there were 12 educators (teachers) involved in this research. The data collection process was carried out through *Focus Group Discussion* (FGD).

Research conducted by Valtonen, T, et.all (2020) provides an important perspective on the development of pre-service teachers' TPACK. The results of the study indicate that pedagogical knowledge and a detailed perspective on how pre-service teachers perceive their readiness to use ICT in education are important. For pre-service teachers, in the first year pedagogical knowledge plays the most important role, and the results concretize specific aspects of pedagogical knowledge to develop TPACK in teacher education. The target group of this study consisted of a group of first-year pre-service teachers (N = 86) from a Finnish university. The data used in this study were 86 technology-integrated lesson plans written by first-year pre-service teachers, with specific sections where students outlined areas of confidence and challenges in the lesson plans. These sections are analyzed quantitatively through the theoretical lens of TPACK.

Research results from Santos, JM, Castro, RDR (2021) show that TPACK is an ideal application in all aspects of learning. In this study, the results of the evaluation of the implementation of TPACK for pre-service teachers in public schools around the City of Malolos, Bulacan Province, Philippines were presented. The research findings also revealed that pre-service teachers have 'strong knowledge' in the seven elements of TPACK. More structured alternative approaches should be designed to help teachers in public schools

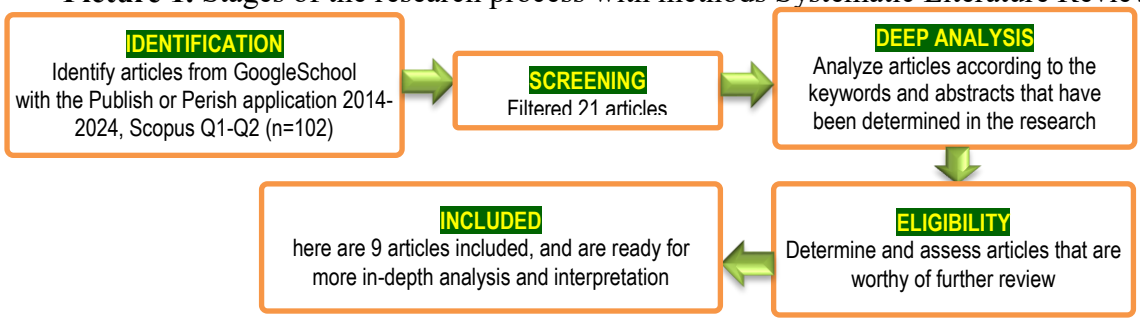
implement 21st century learning with technology integration. This research can be the basis for formulating policies in giving priority to public schools to have budget allocations for Educational Technology devices that will help teachers and students improve the teaching and learning process.

METHODS

Research uses a literature study approach. The method used in writing this article uses the *Systematic literature review method* , where the articles are obtained from the Google Scholar website and reputable international journals with publications in under the last 10 years . The article search used the keywords "*Technological Pedagogic Content Knowledge* (TPACK)", "Economic Digital Literacy", from the articles obtained, 9 main articles indexed Q1/Q2 and several of the most relevant supporting articles were selected .

The research stages carried out by the researcher began by determining the theme and research topic, namely Economic Digital Literacy and TPACK (*Technological pedagogical content knowledge*) Learning. After that, determine *the research question* and research objectives to be carried out. Next, do the mapping and search for articles, namely by searching for articles via Google Scholar and using the *Publish or Perish* (PoP) application, with the keywords Economic digital literacy, Digital skills for Economics, TPACK (Technological pedagogical content knowledge). Researchers limited the search to articles from 2014-2024 and articles with Scopus reputation (Q1, Q2) based on the Scimago Journal & Country Rank (SJR), with search results of 102 articles. Then, after analysis and sorting, 21 articles were obtained that met the criteria determined by the researcher. Furthermore, from the selected articles, the researcher determined 9 articles to be reviewed, analyzed and re-examined in more detail and depth in accordance with the research theme and *Research Question* (RQ) . The following is an overview of the research stages carried out by the researcher.

Picture 1. Stages of the research process with methods Systematic Literature Review



source: (Adapted from Musdary, et.al., 2021)

In table 1 below, a data analysis matrix for the main articles used in conducting a literature review is presented in accordance with the questions stated in the research objectives.

Table 1. Article data analysis matrix used in the literature review

Author, Title, Journal	Method	Results
Potyrała, K., & Tomczyk, Ł. (2021). *Teachers in the lifelong learning process:'examples of digital literacy.* 47(2), 255–273. doi:10.1080/02607476.2021.1876499	Qualitative	Detailed analysis of the results revealed that teachers obtained good results in terms of their knowledge of sexting and image protection, but scored poorly in terms of copyright and online reliability assessments of information; male teachers know more about technical aspects of digital security than female teachers; trainees need special support in the form of informal and non-formal education.
Su, Y. (2023). Del oving into EFL teachers' digital literacy and professional identity in the pandemic era: Technological Pedagogical Content Knowledge (TPACK) framework. *Heliyon* .	Literature review	TPACK is known as an inclusive framework that explains how technology can be incorporated into the classroom. High-level digital literacy skills enable instructors to transform learning to be more creative and innovative.
Irmita, L., & Atun, S. (2018). The influence of Technological Pedagogical and Content Knowledge (TPACK) approach on digital literacy and social skills. *Journal of Turkish Science Education* , *15* (3), 27-40.	Quantitative method with quasi-experiment and pretest and posttest control group design.	The research results show that there is an influence of the TPACK approach on students' digital literacy and social skills at a significance level (p=0.00<0.05). There is an influence of the TPACK approach on digital literacy (sig.= 0.00), and there is no influence of the TPACK approach on the social skills of SMAN 2 Banguntapan students with a significant value (sig.= 0.137).
Miguel-Revilla, D., Martínez-Ferreira, J.M., & Sánchez-Agustí, M. (2020). Assessing the digital competence of educators in social studies: An analysis in initial teacher training using the TPACK-21 model. *Australasian Journal of Educational Technology* , 36(2), 1-12.	Quantitative and questionnaire approaches	The effectiveness of a comprehensive approach that is able to adapt to the specificities and challenges of social studies education. Implications for practice or policy: Pre-service teachers may benefit from approaches that integrate the TPACK model in IP education; Instructors can inform their teaching practices by incorporating the Educator Digital Competency framework and 21st century competencies in initial teacher training; Teacher educators can equip prospective teachers with tools that can help develop their technology pedagogy content knowledge.
Drajati, NA, Tan, L., Haryati, S., Rochsantiningsih, D., & Zainnuri, H. (2018). Investigating English language teachers in developing TPACK and multimodal literacy. *Indonesian Journal of Applied Linguistics* , 575-582.	Literature review	The teacher's role in teaching using the TPACK framework provides scaffolding; facilitate a safe situation for students. The results of the TPACK framework develop teacher skills and student digital literacy.
Santos, J.M., & Castro, R.D. (2021). Technological Pedagogical content knowledge (TPACK) in action: Application of learning in the classroom by pre-service teachers (PST). *Social Sciences & Humanities Open* , *3* (1), 100110.	The study used a mixed methods explanatory sequential design Research.	Where Technological Pedagogical Content Knowledge (TPACK) is the effectiveness of delivering learning with the integration of technology. Of course, the implementation of TPACK is ideal in all aspects of learning, all of which are important in the teaching and learning process.
Altun, D. (2019). Investigating Pre-Service Early Childhood Education Teachers' Technological Pedagogical Content Knowledge (TPACK) Competencies Regarding Digital Literacy Skills and Their Technology Attitudes and Usage. *Journal of Education and Learning* , *8* (1), 249-263.	Quantitative method with correlational research design.	competencies were related to their technology attitudes and use, digital literacy skills, and online reading comprehension strategies, and these variables explained 38% of the variance. The higher the TPACK competency, the higher the digital literacy skills and online reading comprehension.
Meron˜o L, Calderón A, Arias-Estero JL. (2021) Digital pedagogy and cooperative learning: Effect on the technological pedagogical content knowledge and academic achievement of pre-service teachers. Rev Psicodidáct. 2021;26:53–61. https://doi.org/10.1016/j.psicod.2020.10.002	Quasi-experimental	Based on research results, TPACK can increase the digital literacy of teachers and students through an integrated and holistic approach. In an educational context, the use of TPACK can help teachers to develop a better understanding of how to integrate technology into learning, thereby increasing students' digital literacy. In addition, research also shows that the TPACK approach can improve complex understanding of the relationship between technology, content, and pedagogy, which will ultimately help improve students' digital competence.

Maipita, I., Dongoran, FR, Syah, DH, & Sagala, GH (2022). TPACK Knowledge Mastery of Pre-Service Teacher Students in the Faculty of Economics, Medan State University. *In 2nd International Conference of Strategic Issues on Economics, Business and, Education* (ICoSIEBE 2021) (pp. 120-125). Atlantis Press	Quantitative	Prospective economics teachers at this university have started to apply TPACK in economics learning. This can be seen how prospective teachers who are involved in the PPL program have a level of Digital Economic Literacy in the medium category. This happens because one of the factors is academic policies that prioritize the use of technology in the current era of digitalization, especially in economic learning.

Source: *Author's Illustration, 2024*

RESULTS AND DISCUSSION

The Importance of Digital Economic Literacy in Indonesia

Technological advances make economic literature more accessible, encouraging people to have a more resilient mindset (Firmansyah, 2022a). The ability to navigate and explore economic issues digitally which might provide profitable opportunities from an economic aspect is no longer enough just to have economic literacy, but what is clear in this era is that digital readiness is needed, namely knowledge or digital literacy to be able to access it wisely and be able to embrace behavior. economics and finances of individuals and households, the business community so that it is possible to make decisions from economic information, both for personal/family, group economic interests and in the context of business development (Firmansyah et al., 2022; Firmansyah, 2022a; Saepuloh et. al., 2022).

Digital literacy is closely related to economic literacy (Pangrazio, et al., 2020), this is an important aspect in completing economic literacy considering that digital literacy itself has a broad meaning which of course involves behavioral and management, performance and instrumental aspects. If digital literacy is still low, it is possible that the level of economic literacy is also still low. This also applies if digital literacy starts to increase, it does not rule out the possibility that economic literacy will also increase. This is in line with research conducted by Wijaya & Nailufaroh (2022) that the existence of digital literacy will strengthen the impact of economic literacy.

The importance of Digital Economic Literacy is also experienced by other countries, such as the findings of **the first journal** , namely research conducted by Potyrala (2021) regarding data on Digital Economic Literacy among third stage (junior high school) education teachers. Detailed analysis of the results revealed that teachers obtained good results in terms of their knowledge of sexting and image protection, but scored poorly in terms of copyright and online reliability assessments of information; male teachers know more about technical aspects of digital security than female teachers; trainees require special support in the form of informal and non-formal education. The research entitled " *Teachers in the lifelong learning process: examples of digital literacy"* also explains the need to increase

teacher digital literacy and support to motivate teachers so that they develop literacy in using digital technology and their competence in the field of digitalization.

digital economic literacy can be seen from its usefulness for students in the form that it can be used as preparation for future life and also for everyday life (Saepuloh & Rodiah, 2022). Economic literacy integrated into Digital Economic Literacy is also very important for the continuity of learning. Where economic literacy in digitalization allows students to gain attitudes, knowledge and skills through learning activities that are more interesting, better, easier, faster and of course fun (Shintiyah, 2023).

Based on the report issued by Microsoft regarding the 2022 Digital Civility Index , Indonesia's Digital Literacy level is still relatively low. This can be seen from several negative behaviors that occur in cyberspace such as hate speech, spreading fake news, *cyberbullying* , and collecting personal data for the purpose of damaging someone's reputation. This report places Indonesia in 29th place out of 32 countries . Even people have easy access to digital media but lack the ability to filter the information they receive. This is in line with the Ministry of Education and Culture's Pustekkom survey which revealed that 40% of educators are technologically literate, while the remaining 60% have difficulty adapting to advances in the digital era. This is influenced by the advanced age of educators, limited educational technology content, and the need for adequate facilities. With the level of digital literacy still low, how is it possible that Economic Digital Literacy will also increase (Wijaya & Nailufaroh, 2022).

The low level of Digital Literacy experienced by students is caused by monotonous learning activities with lectures without using interesting technology (Sai, 2017). Even though students have easy access to digital media, they lack the ability to filter the information they receive. This is influenced by the advanced age of educators, limited educational technology content, and the need for adequate facilities. Apart from that, there are limitations for teachers in utilizing information technology (Putri & Citra, 2019). Some of these problems have an impact on reducing students' enthusiasm for participating in learning, so that learning activities become less effective. In fact, economic literacy integrated in digitalization functions as a guide to support learning so that students not only focus on understanding the material but also develop creative thinking in utilizing technology (Abdullah & Wicaksono, 2020; Umaya & Riwanto, 2020)

The Effect of TPACK on Economic Digital Literacy

Producing competent graduates is one of the challenges faced by the education sector (Sintawati & Indriani, 2019; Permatasari, 2021). In addition, the level of Economic Digital

Literacy in Indonesia is still relatively low, as evidenced by a survey which placed Indonesia in 62nd position out of 70 countries (Darwanto et al., 2021). Even though digital literacy is important in facilitating access to educational information that is more *up to date* , and also covers broader information (Salim, et al., 2020). Therefore, there is a need to improve the quality of education both in terms of content, pedagogy and technology. The combination of the three will certainly influence Digital Economic Literacy considering that literacy consists of knowledge realized in the form of technology.

According to Syamsuri (2021), one effort that can be made to implement quality education is through *Pedagogical Content Knowledge* (TPACK). This is in line with the current demands of teachers who must master *Information and Communication Technology* (ICT) in the learning process, so that a meaningful and enjoyable learning process can be realized in the classroom (Rahmadi, 2019). Based on the results of a literature review in several articles, researchers found that there are implications of the *Pedagogical Content Knowledge* (TPACK) framework in influencing the increase in digital literacy so that it can be used as a solution to overcome the low level of digital literacy in Indonesia, especially in the realm of education. Each of the findings obtained in the article results in the development and improvement of digital literacy .

The findings in the **second journal** are from research conducted by Su (2023), TPACK is known as an inclusive framework that explains how technology can be incorporated into the classroom. Instructors equipped with a high level of TPACK can continue to incorporate technology into the curriculum to promote effective, context-specific teaching strategies and also promote learning goals. This affects teachers' digital literacy because such literacy skills can enable teachers to face contemporary challenges related to the practice of blended learning models in educational contexts. High-level digital literacy skills enable instructors to transform learning to be more creative and innovative.

This is in line with the **third journal** , research by Irmita, L., & Atun, S. (2018) regarding the influence of *the Technological Pedagogical and Content Knowledge (TPACK)* approach on students' digital literacy and social skills. The research results show that there is an influence of the TPACK approach on students' digital literacy and social skills at a significance level ($p=0.00<0.05$). There is an influence of the TPACK approach on digital literacy (sig.= 0.00), and there is no influence of the TPACK approach on the social skills of SMAN 2 Banguntapan students with a significant value (sig.= 0.137).

From the findings obtained in the **fourth journal** by Miguel-Revilla (2020) regarding *"Assessing the digital competence of educators in social studies: An analysis in initial*

teacher training using the TPACK-21 model" , data was obtained on the effectiveness of a comprehensive approach that is able to adapt to specificities and challenges of social studies education. Implications for practice or policy: Pre-service teachers may benefit from approaches that integrate the TPACK model in IP S education ; Instructors can inform their teaching practices by including the Educator Digital Competency framework and 21st century competencies in initial teacher training; Teacher educators can equip prospective teachers with tools that can help develop their technology pedagogy content knowledge.

journal findings **The fifth** is in line with the sixth article , where Drajati (2018), stated that the teacher's role in teaching using the TPACK framework provides scaffolding; facilitate a safe situation for students. The results of the TPACK framework develop teacher skills and student digital literacy. Of course, this is in line with Absari, Priyanto, & Muslikhin (2020), that Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK) and Technological Pedagogical Knowledge (TPK) influence *Technological Pedagogical Content Knowledge* (TPACK). In other words, the implementation of TPACK will have a positive impact on the flow of learning with a combination of knowledge, pedagogy, technology. Of course, with the combination of knowledge, pedagogy, technology, the role of digital literacy will be very necessary. If learning is carried out with a combination of TPACK, of course the intensity of the use of digital literacy will increase . This happens considering that digital literacy refers to the ability to handle digital devices and other communication tools, process information, and transmit the information absorbed (Muttaqin et al., 2020: 22).

On **journal findings sixth** , there was research conducted by Santos & Castro (2021), which contained an evaluation of the application of **Technological** *Pedagogical Content Knowledge* (TPACK) by prospective teachers in various state schools around Bulacan. Where *Technological Pedagogical Content Knowledge* (TPACK) is the effectiveness of delivering learning with the integration of technology. Of course, the implementation of TPACK is ideal in all aspects of learning, all of which are important in the teaching and learning process. In line with Mishra (2019), TPACK is promising in shaping the future of technology integration, both in research and practice. *Technological Pedagogical Content Knowledge* (TPACK) is one of the "ivory tower" theories that academics dream of being easy to use, useful and motivating.

The integration of technology in education is a complex and multidimensional problem. *Technological Pedagogical Content Knowledge* (TPACK) goes beyond the triad of core knowledge types and becomes the basis for the effective integration of technology into

teaching. In line with the findings of the **seventh journal , Altun 's** (2019) research revealed that pre-service teachers' TPACK competencies were related to their technology attitudes and use, digital literacy skills, and online reading comprehension strategies, and these variables explained 38% of the variance. The higher the TPACK competency, the higher the digital literacy skills and online reading comprehension. However, in this study teacher candidates' grade levels and GPAs were unrelated to their self-reported TPACK competencies. These findings can be seen as a signal of the need for theoretical knowledge and practice to be developed in pre-service teachers' technology integration in education.

Findings **the eighth journal is** research by Meron˜o L, et.al (2021) explained that TPACK can increase the digital literacy of teachers and students through an integrated and holistic approach. Using TPACK can help teachers to develop a better understanding of how to integrate technology into learning, thereby increasing students' digital literacy. Additionally, the TPACK approach can improve complex understanding of the relationship between technology, content, and pedagogy, which will ultimately help improve students' digital competence.

The implementation of TPACK will have a positive impact on the flow of learning with a combination of knowledge, pedagogy, technology. In fact, strengthening the competence *of Technological Pedagogical Content Knowledge* (TPACK) has a positive impact on teacher competence. Where teachers can understand the 3 competencies that teachers as educators must master in order to support professional teacher abilities which include material content abilities, pedagogical abilities, and technological abilities (Sirajuddin, 2023). Where learning related to the TPACK approach utilizes digital as a learning medium in various ways. This digital media can be in the form of PowerPoint slides displayed on a projector, videos, games, animations, films, dramas, audiovisual talks, and many more. In situations like this, digital skills become the focus of learning (Batubara & Husein, 2021). TPACK has a huge effect on learning. Even if the teacher does not master the components in TPACK, the expected results in learning will be less than optimal (Absari, 2020). However, if teachers use TPACK-based learning, it will attract students' attention so that they do not get bored in learning and of course this will have an impact on improved learning outcomes (Widaningsih, Irianto, & Yuniarti, 2023).

Technological Pedagogical Content Knowledge (TPACK) not only has an impact on digital literacy levels, but also on Economic Digital Literacy. This is as Wahbi & Ariwibowo's (2019) opinion is that Digital Economic Literacy is a combination of economic literacy and digital literacy in the form of skills to use and manage economic information

contained on the internet or cyberspace. This is in line with research conducted by Wijaya & Nailufaroh (2022) that the existence of digital literacy will strengthen the impact of economic literacy. The application of TPACK to economic learning will increase economic literacy and digital literacy. Where digitalization and ease of digging up economic information will be realized in the TPACK mix. In accordance with the findings of **the ninth journal** from research by Maipita et al., (2022) with the title "*TPACK Knowledge Mastery of Pre-Service Teacher Students in the Faculty of Economics, Medan State University"* , which stated that prospective economics teachers at the university had started applying TPACK in economics learning. This can be seen how prospective teachers who are involved in the PPL program have a level of Digital Economic Literacy in the medium category. This happens because one of the factors is academic policy which prioritizes the use of technology in the current era of digitalization, especially in economics learning in the classroom.

From the review article that has been presented, it is synthesized that *Technological Pedagogical Content Knowledge* (TPACK) can be a solution in increasing Digital Economic Literacy . As previously mentioned, the presence of *Technological Pedagogic Content Knowledge* (TPACK) in learning can increase Digital Economic Literacy (Fitria, 2020). From learning that was originally based on a lecture system, then integrated with digitalization will certainly bring a positive flow in the development of Digital Economic Literacy. This happens because learning that previously only sought information from books or printed media has changed to a wider reach through digital media. Through this, of course students will be inspired to use sophisticated digitalization so that the intensity of digital literacy/reading culture will increase.

CONCLUSION

Based on the results of the article analysis that has been carried out, data is obtained that *Technological Pedagogical Content Knowledge* (TPACK) has an important role in increasing Digital Economic Literacy. Implementation of TPACK will have a positive impact on learning, because by implementing learning that combines *Technological Pedagogical Content Knowledge (TPACK)* components , it will increase students' Digital Economic Literacy. This happens because Economic Digital Literacy refers to the ability to handle digital devices and other communication tools, process and transmit knowledge or information in digital form.

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